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FRENCH PATENT

Document No. 0,375,580 A1

SIGNALING DEVICE FOR CLOSING A TRAFFIC LANE TO PASSENGER VEHICLES
AND ALLOWING PEDESTRIANS TO CROSS
[DISPOSITIF DE SIGNALISATION DE BARRAGE D'UNE VOIE DE CIRCULATION
POUR VEHICULES AUTOMOBILES ET D'UN PASSAGE POUR PIETONS]

UNITED STATES PATENT AND TRADEMARK OFFICE

Washington, D.C.

JANUARY 2003

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<u>Country</u>	:	FRANCE
<u>Document No.</u>	:	0,375,580
<u>Document Type</u>	:	European patent application
<u>Language</u>	:	French
<u>Inventor</u>	:	D. Heitzmann, R. Marcellier
<u>Applicant</u>	:	Centres d'etudes techniques de l'equipement de l'est
<u>IPC</u>	:	E01F 13/00
<u>Application Date</u>	:	19891215
<u>Publication Date</u>	:	19900627
<u>Foreign Language Title</u>	:	Dispositif de signalisation de barrage d'une voie de circulation pour vehicules automobiles et d'un passage pour pietons
<u>English Title</u>	:	Signaling device for closing a traffic lane for passenger vehicles and allowing crossing for pedestrians

Signaling device for closing a traffic lane for passenger vehicles and allowing crossing for pedestrians

Abstract

This safety device for pedestrian crossings is comprised of two identical components (1) arranged on both sides of the pavement and each one formed by a post (2) that is suitable for storing a signaling system strip (4) installed in a self-retractable manner and that supports, preferably at a height of 2 to 10 meters, a guidepost holder (3) of the said strip. The two strips (4), stretched across the pavement, extend, due to the height arrangement of their holders (3), each one along a descending line, the pair of strips thus having for vehicle drivers the appearance of a highway sign cross visible from far away. An operating arm (5) is installed at the free end of each strip (4) by means of tear-away safety assemblies.

A guidance device provided on the lower part of the post (2) allows return of the strip (4) along the sidewalk to prevent passage of pedestrians wishing to cross.

A holder (3) can be placed on top of a powered device, in the shape of a human being for example, to attract the attention of drivers.

¹ Numbers in the margin indicate pagination in the foreign text.

The present invention pertains to the field of highway safety, in population centers in particular, especially in the area of pedestrian crossings and has the goal of a device to indicate closing of a traffic lane for passenger vehicles and a crossing for pedestrians.

Pedestrian crossings are generally rather poorly recognized by passenger vehicle drivers and, for this reason, not very well obeyed, which presents a considerable risk of accidents for the users of these crossings.

For this reason it has been proposed that one point out these crossings by one or several specially formed groups of users, providing each one with a paddle that includes a reflecting component, these users taking up positions on both sides of a crossing and making the paddles clearly visible. This known signaling procedure, however, has the disadvantage that although it contributes to greater responsibility of the crossing users it puts the paddle users in a dangerous position in the middle of traffic, with considerable risk of exposure to being struck by a vehicle.

The present invention aims to eliminate these disadvantages.

Indeed, its object is a device that indicates closing of a traffic lane for passenger vehicles and of a pedestrian crossing characterized in that it is essentially comprised of two

identical components arranged on both sides of the traffic lane and the crossing to be protected and each one consisting of a supporting post of a guide holder of a signaling strip provided at its free end with an operating arm, the implementation of the strips of these components producing a visual superimposition in the shape of a cross.

The invention will be better understood from the following description that refers to one mode of preferred implementation, which is given as a non-limiting example and is explained with reference to the attached drawings in which:

- Figure 1 is a sectional lateral top view of one component of the device in conformity with the invention;
- Figure 2 is a sectional partial view, on a larger scale, which shows the lower part of the post of the component according to figure 1;
- Figure 3 is a sectional partial view of a return part of the strip in horizontal position;
- Figure 4 is a view similar to that of figure 3 of one implementation version of the return part, and
- Figure 5 is a lateral top view of the operating arm.

In conformity with the invention, and as figure 1 of the attached drawings shows more particularly as an example, the signaling device of closing of a traffic lane for passenger

vehicles and of a pedestrian crossing is essentially comprised of two identical components 1 arranged on both sides of the traffic lane and the crossing to be protected and each formed of a support post 2 of a signaling strip 4 road sign holder 3 provided at its free end with an operating arm 5, the employment of strips 4 of the components 1 producing a visual superimposition in the shape of a cross.

The holder 3 is comprised, preferably, of two half-shells 3' connected to one another by some hinges 6 and closed, on the side opposite the hinges, by means of a screw, a bolt or other article (not shown), one of the half-shells 3' being provided with a sleeve 7 for insertion in the post 2, this sleeve 7 being integrated with the post 2 through the intermediary of a screw, the said holder 3 being preferably arranged at a height between two meters and ten meters, preferably about three meters (figure 1). This mode of implementation allows standardized manufacture of the posts 2 and the holders or containers 3 and simplified storage and transport, so that these two components can be handled separately. In addition, the provision of the sleeve 7 allows easy and quick assembly of the holder 3 on the post with instantaneous positioning. Moreover, the height arrangement of the holders 3 allows one to produce, during use of the strips 4, a signaling cross visible at a great distance for drivers on the road.

The signaling strip 4 is preferably connected by one of its ends to an anchorage 8 provided in the upper part of the half-shell 3' of the holder 3 integrated with the sleeve 7, this half-shell 3' being provided, in addition, with at least one roller 9 for return of the strip 4 and with two guide rollers 10 of the said strip 4 in the direction of its exit from the holder 3 through the intermediary of a slit bounded by some corresponding walls 11 of the half-shells 3', on the side opposite the hinges 6, the said rollers 9 and 10 being installed in cantilever fashion in the corresponding half-shell 3', the walls 11 bordering, in addition, with the half-shells 3' a housing 5' for the operating arm 5 in rest position of the device. Thus, it is possible to achieve perfect guidance of the strip during its exit from the holder 3 and, in particular, during twisting by one quarter turn that it undergoes between the return roller 9 and the guide slit bounded between the walls 11 of the half-shells 3'.

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In addition, the signaling strip 4 works with a movable carrier 12 that serves as a counterweight and that can be provided with additional loads 13 that are connected by screws or hooks to supports of a corresponding shape of the said carrier 12, which has the general shape of an angle iron, whose vertical wing is provided with at least one roller in cantilever position

14 for installation of the carrier on at least one loop of the strip 4.

The provision of rollers 9 and 10 in cantilever fashion in the holder 3 and on the moving carrier 12 allows easy installation and dismantling of the strip 4, in particular for its possible replacement, after wearing out, breaking or other reason.

The additional loads 13, secured in the known manner to the carrier 12, are intended to be used for adjustment of the weight of the carrier 12 in order to control the return as a function of the length of the strip 4, its constituent material, the number of strands that it has, and the user. Moreover, the control of the carrier 12 weight allows one to influence the return speed of the strip 4, which should not be too fast nor too slow, in order to beneficially affect the behavior of the passenger vehicle drivers.

In order to encourage emergence of the operating arm 5 out of the holder 3, the post 2 is preferably provided in its lower section with a device 15 for actuating the moving carrier 12 comprised of a paddle 16 that extends beneath the said carrier 12 and its additional loads 13 and connected through the intermediary of a cable or a strip 16' that works with a return roller 17 at the free end of a flap door 18 connected at its

other end by a hinge 19 to the post 2 and held in closed position by means of a locking device not shown (figure 2).

The flap door 18 can preferably be made in the form of a transparent port hole that can be provided with engraved messages. Thus, the flap door 18 allows one, on the one hand, to verify, without opening, proper functioning of the movable carrier 12 and, on the other hand, to form a message support, as well as an indication of functioning for users and advertisers.

According to a variant of implementation of the invention, not shown in the attached drawings, the movable carrier 12 can be replaced by several independent carriers with each one being assigned to one loop of the strip 4. Thus, it is possible to reduce the weight of the movable carriers and to modulate the return force as a function of the length of the strip that is unrolled.

In conformity with another characteristic of the invention, and as figures 3 and 4 of the attached drawings reveal, each post 2 is preferably provided in its lower part with a means 20 of guiding the strip 4 that stretches outward with respect to the post 2 and perpendicular to the traffic lane of the passenger vehicles. This device 20 is intended to allow a return of the strip 4 perpendicular to the post 2, along a sidewalk for example, in order to prevent crossing toward the traffic lane and

the crossing of pedestrians during the times reserved for traffic of passenger vehicles.

This device 20 is also used as a step for possible work in the area of the guide holder 3 of the strip 4.

The device 20 can preferably be made, as figure 3 of the attached drawings shows, in the form of a simple cylindrical or approximately cylindrical cast or machined crank, secured to the wall of the post 2 by screws and possibly split to favor retention of the arm 5 with crossing of the strip 4. In this mode of implementation the device 20 remains continually projecting out from the post 2.

Figure 4 shows another variant of implementation of the device 20, in which the latter is comprised of an elongated shape component secured vertically to one wall of the post 2 and having, approximately in its middle part, a slit 21 of which one side, preferably the lower side, is bound by a retractable component 22. This retractable component 22 can be made in the form of a simple part installed in pivoting manner by means of hinges 23 on the lower part of the elongated component that forms the device 20 and is held in position of formation of the slit 21 by a pin 24 inserted elastically inside the post 2 or by a simple pin placed within the post 2 and integrated with a small holding chain. The retractable component 22 can also be made in the form

of a sliding piece in the post 2 in disappearing position and held in the other position by a pin, a bolt or similar device.

The provision of the retractable component 22 allows easy conversion of the device 20 to a step, in the retracted position of the said component 22, while in its other position it prevents any untimely use of the device 20 other than as a means of guiding the strip 4.

As figure 5 shows the operating arm 5 is preferably made in the form of a closed handle provided with a gripping part 25 and, on the side opposite this part 25, a housing 26 for receiving the ends of an elastic component 27 for securing the free end of the signaling strip 4 in the arm 5. The elastic component 27 is preferably comprised of a steel wire with springs joined together in a loop of the free end of the strip 4 and whose ends are crossed and each have one part 27' that extend approximately parallel to the one joined together in the loop of the strip 4, the said parts 27' entering into lateral chambers 26' of the housing 26. Thus, after insertion of the loop of the strip 4 on the elastic component 27, the latter is deformed so as to allow penetration of its ends 27' in the housing 26 and their elastic interlocking in the lateral recesses 26', thus achieving holding in position of the said component 27.

The ends 27' of the elastic component 27 preferably terminate in a rounded edge or in a part with a loop that extends perpendicularly and in the plane of the said ends. This conformation of the ends 27' combined with component 27 being made of an elastically deformable material allows one to obtain a connection that can be broken by tearing in case a predetermined pulling force on the strip 4 is exceeded. For this purpose the component 27 is separable by tearing from the housing 26 of the arm 5 thanks to calibration of the insertion force of the ends 27' in the recesses 26'. Such calibration can easily be accomplished by a preliminary calculation of the cross section of the wire that comprises the component 27. Thus, in the case of excessive and rough pulling on the strip 4, the component 27 is deformed and its ends 27' are torn out of the corresponding recesses 26' of the housing 26, which causes separation of the arm 5 and the strip 4, so that the user is not in danger of being pulled by the said strip 4, especially in the case when a passenger vehicle has carried away the said strip.

The connection between the end loop of the strip 4 and the operating arm 5 can also be obtained by means of a shaft (not shown) that crosses the said end loop and is provided at its two ends or at least at one end of a moving component loaded by springs that tend to repel the two ends in the lateral recesses

of the housing of the operating arm. Such a shaft can be present in the form of a shaft provided at its two ends with retractable balls loaded by springs or even in the form of a telescoping shaft whose components are spring loaded.

In conformity with another characteristic of the invention, not shown in the attached drawings, the ends 27' of the elastic component 27 are housed in the end loop of the strip 4, the component 27 being integrated with the arm 5. Thus, in case of a shock that causes rupture of the connection, any dangerous and heavy component is no longer cast out.

According to another characteristic of the invention, the strip 4 and the lateral sides of the operating arm 5, in particular those that extend on both sides of the housing 26, are preferably provided with back-reflecting components 28 in the form of self-sticking bands, rigid pieces attached by gluing or other method or even with components sewn to the strip 4 or secured by crimping to the arm 5.

Finally, in conformity with another characteristic of the invention, the holder 3 can preferably have a fixed or powered device not shown here placed above it, whose drive movements are achieved through the intermediary of devices driven by chains, belts, gearing or cams and rods. Such a powered device can be present in the form of an animal that brings to mind slow movement such as a duck, turtle or snail, or even in the form of

a human being. Such a mode of implementation allows one to attract the attention of drivers to the personalized device that they will remember, recognize and adjust to, and they therefore will be led more naturally to slow down and to stop whenever they need to.

Moreover, according to another characteristic of the invention, each holder 3 and its post 2 can preferably be provided on their external sides with a reflecting material in the form of an attached film, a fluorescent paint or attached reflecting elements. Such reflecting sides also allow one to make the device easily located, even at a relatively great distance, so that safety is also increased.

The device in conformity with the invention can be implemented very easily by all users, whatever their age and their size, the beginning of the emergence of the operating arm 5 of the holder 3 capable of being easily made by means of the actuation unit 15 of the moving carrier 2, the said arm 5 being then simply pulled by the user toward the opposite side of the pavement. Thus, the traction on the strip 4 as it leaves the holder 3, on both sides of a roadway, allows one to determine a traffic color for pedestrians, this color being perfectly indicated.

After the crossing of pedestrians it suffices to return with each arm to the departure point and to release it, its re-

entrance into the corresponding holder 3 being accomplished automatically, in the known manner.

In order to prevent crossing of the roadway during a time of passenger vehicle traffic it suffices to pull the strip 4 around the guide unit 20 or through the slit 21 of this unit 20 and to

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hold the arm 5 at a distance from the post 2 that corresponds to the width of the pedestrian crossing to be blocked.

The invention is more particularly intended to be used temporarily in an urban setting for indicating closing of pedestrian closings, alternatively during crossing of the roadway and during the passage of passenger vehicles. However, this device is also applicable for crossings at grade, closings of river crossings, animal crossings, for highway checks, and so forth.

Of course the invention is not limited to the mode of implementation described here and shown in the attached drawings. Some modifications remain possible, especially from the standpoint of the make-up of the various components or the substitution of technical equivalents, without thereby departing from the area of protection of the invention.

CLAIMS

1. Device for indicating the closing of a traffic lane for passenger vehicles and a crossing for pedestrians characterized

in that it is essentially comprised by two identical components (1) arranged on both sides of the roadway and the crossing to be protected and each one formed of a support post (2) of a signaling strip (4) guide holder provided at its free end with an operating arm (5), the employment of the strips (4) of the components (1) producing a visual superimposition in the form of a cross.

2. Device, according to claim 1, characterized in that the holder (3) is comprised, preferably, of two half-shells (3') connected to one another by some hinges (6) and closed, on the side opposite the hinges, by means of a screw, a bolt or other device, one of the half-shells (3') being provided with a sleeve (7) for insertion in the post (2), this sleeve (7) being integrated with the post (2) through the intermediary of a screw, the said holder (3) being preferably arranged at a height between two meters and ten meters, preferably about three meters.

3. Device according to claim 1 characterized in that the signaling strip (4) is preferably connected by one of its ends to an anchor (8) provided in the upper part of the half-shell (3') of the holder (3) integrated with the sleeve (7), this half-shell (3') being provided, moreover, with at least one return roller (9) of the strip (4) in the direction of its emergence from the holder (3) through the intermediary of a slit bound by some corresponding walls (11) of the half-shells (3'), on the side

opposite the hinges (6), the said rollers (9 and 10) being installed in cantilever manner in the corresponding half-shell (3'), the walls (11) delimiting, moreover, with the half-shells (3') a housing (5') for the arm (5) in the rest position of the device.

4. Device according to any of the claims 1 and 3 characterized in that the signaling strip (4) works with a moving carrier (12) that serves as a counterweight and that can be provided with additional loads (13) attached by screwing or by hooking to some supports of a corresponding shape of the said carrier (12), which has the general shape of an angle iron, whose vertical wing is provided with at least one roller in cantilever manner (14) of installation of the carrier to at least one loop of the strip (4).

5. Device according to any of the claims 1 and 4 characterized in that the post (2) is preferably provided in its lower part with a device (15) for actuating the moving carrier (12) comprised of a paddle (16) that stretches beneath the said carrier (12) and its additional loads (13) and is connected through the intermediary of a cable or a strip (16') that works with a return roller (17) at the free end of a flap door (18) connected at its other end by a hinge (19) to the post (2) and held in closing position by means of a locking device that is not shown.

6. Device according to claim 5 characterized in that the flap door (18) is preferably made in the form of a transparent port hole that can be provided with engraved messages.

7. Device according to claim 4 characterized in that the moving carrier (12) is replaced by several independent carriers, each one assigned to one loop of the strip (4).

8. Device according to claim 1 characterized in that each post (2) is preferably provided in its lower part with a guide device (20) of the strip (4) that extends outward with respect to the post (2) and perpendicular to the traffic lane of the passenger vehicles.

9. Device according to claim 8 characterized in that the device (2) is preferably made in the form of a simple cylindrical sleeve or approximately cylindrical that is cast or machined, secured to the wall of the post (2) by screws or possibly split to enhance holding of the arm (5) with passage of the strip (4).

10. Device according to claim 8 characterized in that the device (20) is comprised of an elongated shape component secured vertically to one wall of the post (2) and having, approximately in its middle section, a slit (21) of which one side, preferably the lower side, is delimited by a retractable component (22).

11. Device according to claim 10 characterized in that the retractable component (22) is made in the form of a simple piece

installed in pivoting manner by means of hinges (23) on the lower section of the elongated component that forms the device (2) and is held in position of formation of the slit (21) by a pin (24) installed elastically inside the post (2) or by a simple pin put in position inside the post (2) and integrated with a holding chain.

12. Device according to claim 10 characterized in that the retractable component (22) is made in the form of a sliding piece in the post (2) in retractable position and held in the other position by a pin, a bolt or similar part.

13. Device according to any of the claims 1 and 3 characterized in that the operating arm (5) is preferably comprised in the form of a closed handle provided with a gripping part (25), a housing (26) for receiving the ends of an elastic component (27) for securing the free end of the signaling strip (4) in the arm (5).

14. Device according to claim 13 characterized in that the elastic component (27) is preferably comprised of a steel wire with springs fitted in a loop of the free end of the strip (4) and whose ends cross and each have one part (27') that extends approximately parallel to the one fitted into the loop of the strip (4), the said parts (27') penetrating into some lateral recesses (26') of the housing (26).

15. Device according to claim 14 characterized in that the ends (27') of the elastic component (27) preferably terminate in a rounded edge or in a part of the loop that extends perpendicularly and in the plane of the said ends.

16. Device according to any of the claims 1 and 3 characterized in that the connection between the end loop of the strip (4) and the operating arm (5) is made by means of a shaft that crosses through the said end loop and provided at its two ends with at least one end of a movable component loaded by springs that tend to push back the two ends in the lateral recesses of the housing of the operating arm.

17. Device according to any of the claims 14 and 15 characterized in that the ends (27') of the elastic component (27) are housed in the end loop of the strip (4), the component (7) being integrated with the arm (5).

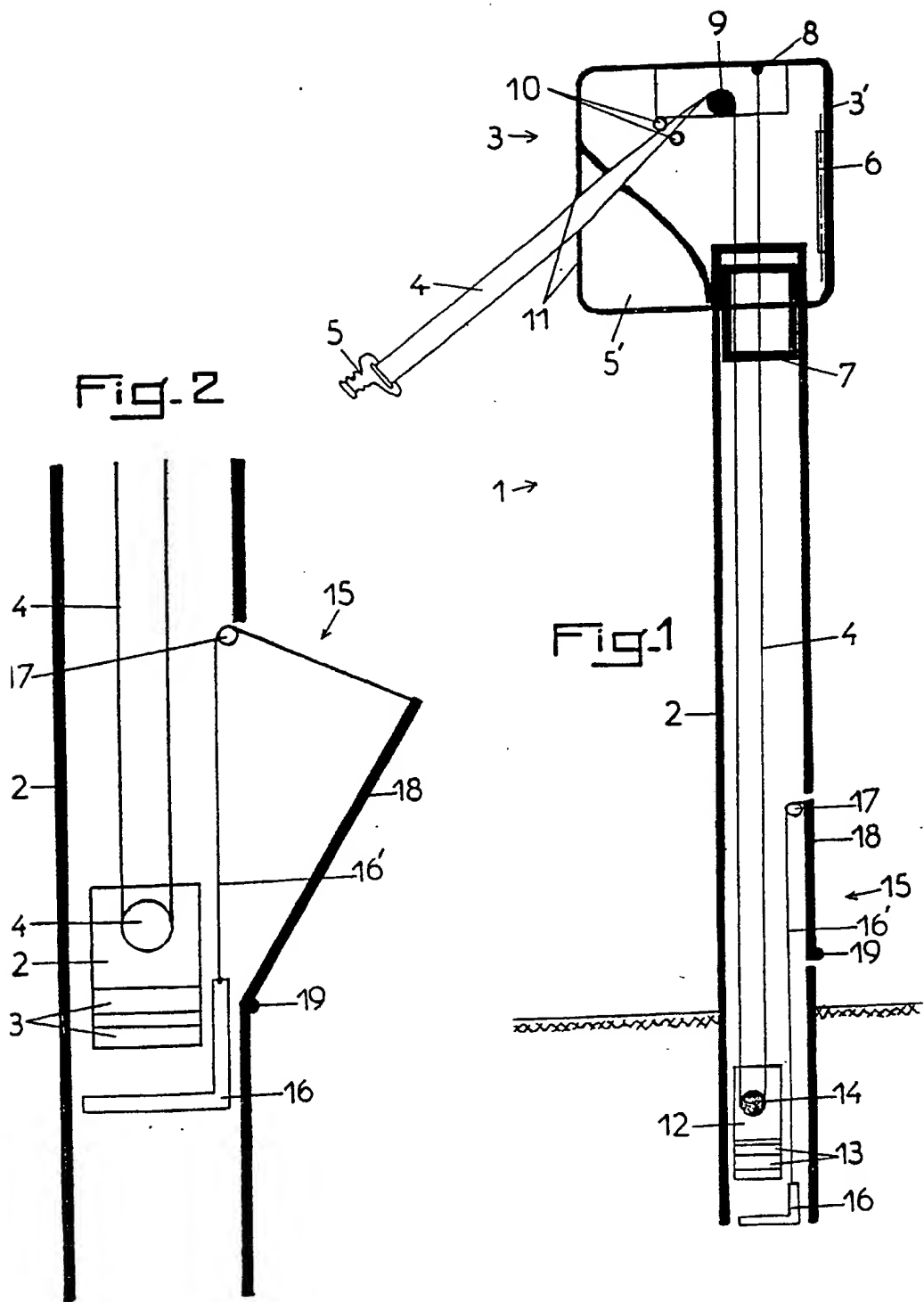
18. Device according to any of the claims 1, 3, 14, and 16 characterized in that the strip (4) and the lateral sides of the operating arm (5), in particular those that extend on both sides of the housing (26), are preferably provided with reflecting elements (28) in the form of self-sticking bands, of rigid pieces attached by gluing or other method or even with components sewn to the strip (4) or secured by crimping to the arm (5).

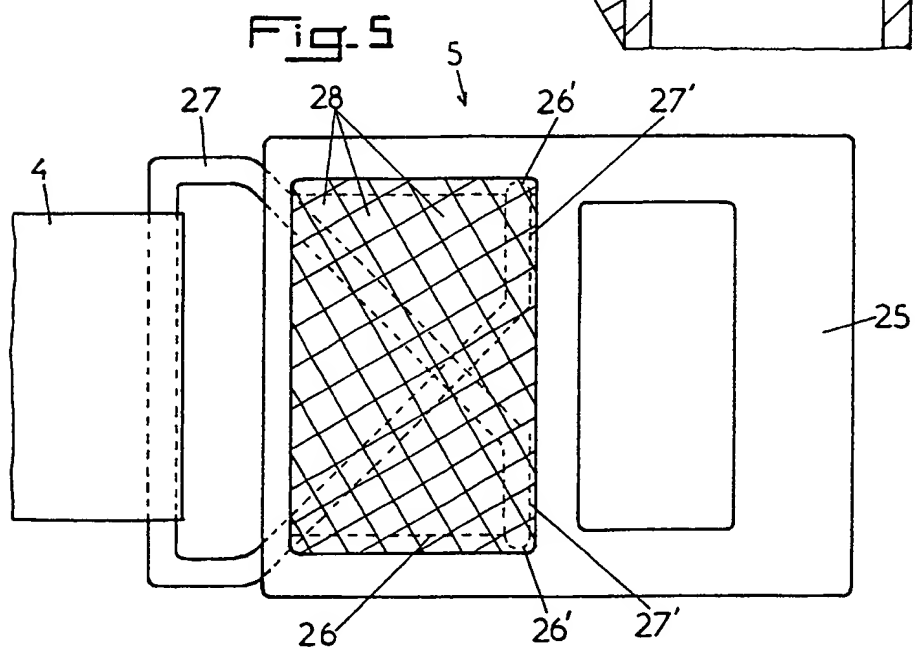
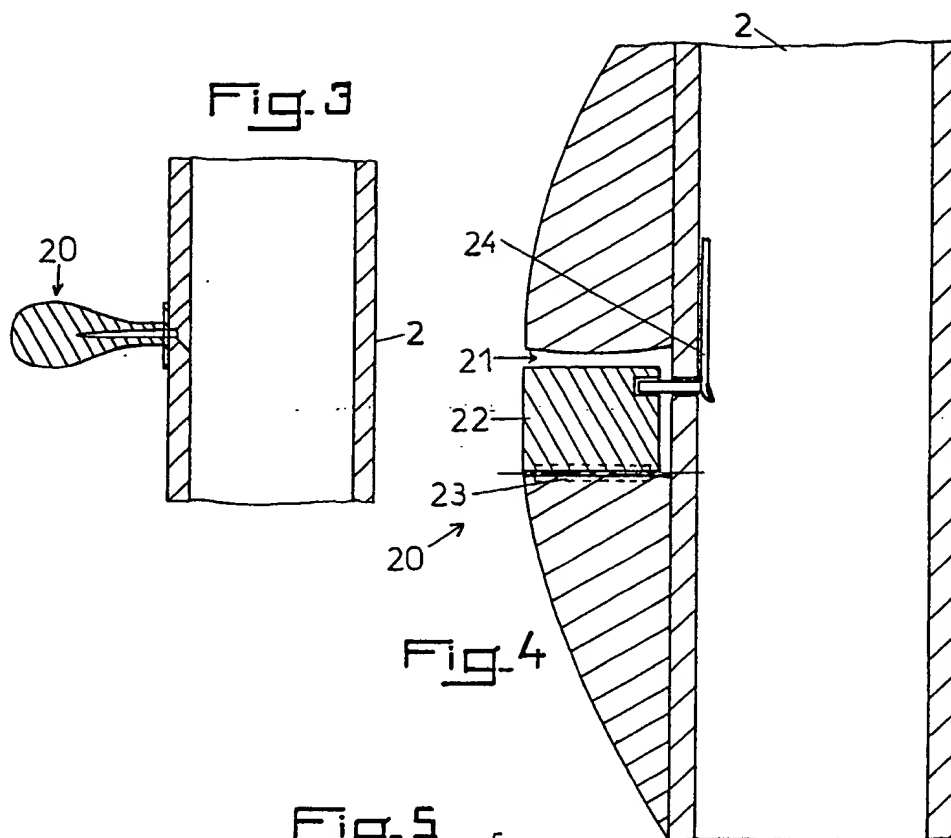
19. Device according to any of the claims 1 and 2 characterized in that the holder (3) preferably has a fixed or powered device

placed on top of it, whose movements of animation are achieved through the intermediary of drive devices with chains, belts, gearing or cams and rods.

20. Device according to any of the claims 1, 2 and 19 characterized in that each holder (3) and its post (2) are preferably provided on their external sides with reflecting material in the form of an attached film, a fluorescent paint or attached reflecting elements.

Five figures.





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Jun 27, 1990

PUB-NO: EP000375580A1

DOCUMENT-IDENTIFIER: EP 375580 A1

TITLE: Device for indicating a road block for motor vehicles and a pedestrian crossing.

PUBN-DATE: June 27, 1990

INVENTOR-INFORMATION:

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ABSTRACT:

CHG DATE=19990617 STATUS=O> The safety device for pedestrian crossings is composed of two identical elements (1) on either side of the roadway and each formed by a column (2) which is suitable for arranging a signalling tape (4) mounted in an autoretractable manner and which supports, advantageously at a height of 2 to 10 metres, a box (3) for guiding the said tape. The two tapes (4), drawn across the roadway, each extend, as a result of the height arrangement of their guide boxes (3), in a descending line, the pair of tapes thus appearing to motorists as a signalling cross which is visible from a distance. An operating handle (5) is mounted at the free end of each tape (4) by means of removable safety assemblies. A guide means provided on the lower part of the column (2) enables the tape (4) to be returned, along the pavement, so as to block the passage of pedestrians wishing to cross. A box (3) may be surmounted by an animated device, e.g. in the form of a

human, to attract the attention of motorists. 